

COPY

1 IN THE UNITED STATES DISTRICT COURT

2 FOR THE DISTRICT OF HAWAI'I

3 'ILIO'ULAOKALANI COALITION,) Civil No. 04-00502 DAE BMK
 4 a Hawai'i nonprofit)
 5 corporation; NA 'IMI PONO,)
 6 a Hawai'i unincorporated)
 7 association; and KIPUKA, a)
 8 Hawai'i unincorporated)
 9 association,)

10 Plaintiffs,)

11 vs.)

12 DONALD H. RUMSFELD,)
 13 Secretary of Defense; and)
 14 FRANCIS J. HARVEY,)
 15 Secretary of the United)
 16 States Department of the)
 17 Army,)

18 Defendants.)
 19 _____)

20 DEPOSITION OF RONALD L. BORNE

21 Taken on behalf of the Plaintiffs, at the law
 22 offices of Earthjustice, 223 South King Street, Third
 23 Floor Conference Room, Honolulu, Hawai'i, commencing at
 24 9:36 a.m., on Monday, December 4, 2006, pursuant to
 25 Notice.

BEFORE: CARI VALLO, CSR No. 252, RPR
 Notary Public, State of Hawai'i

PACIFIC REPORTING SERVICES UNLIMITED

Topa Financial Center

745 Fort Street, Suite 704

Honolulu, Hawai'i 96813

(808) 524-7778

EXHIBIT 6

1 APPEARANCES:

2 For Plaintiffs 'Ilio'ulaokalani Coalition, a
3 Hawai'i nonprofit corporation; Na 'Imi Pono,
4 a Hawai'i unincorporated association; and
5 Kipuka, a Hawai'i unincorporated association:

6 DAVID L. HENKIN, ESQ.
7 Earthjustice
8 223 South King Street, Suite 400
9 Honolulu, Hawai'i 96813
10 (808)599-2436

11 For the Defendants Donald H. Rumsfeld, Secretary
12 of Defense, and Francis J. Harvey, Secretary of
13 of the United States Department of the Army:

14 ROBERT M. LEWIS, ESQ.
15 Senior Trial Attorney
16 Environmental Law Division
17 U.S. Army Litigation Center
18 901 N. Stuart Street, Suite 400
19 Arlington, Virginia 22203
20 ~~(703)696-1567~~

21 JAMES D. GETTE, ESQ.
22 Trial Attorney, Natural Resources Section
23 U.S. Department of Justice
24 Environment & Natural Resources Division
25 601 D Street, NW
Washington, DC 20004
(202)305-1461

ALSO PRESENT: Anna Mallon, William Aila

1 BY MR. HENKIN:

2 Q In the Army's disclosures with respect to the
3 proposed Stryker training, they identify for the
4 purposes of maneuvers certain go and no-go areas. Are
5 those terms familiar to you?

6 A Yes, they are.

7 Q Were you involved in the designation of go and
8 no-go areas at Schofield East Range?

9 A Yes, I was.

10 Q I'm going to show you a document that was
11 provided to me by the Army and ask you if you recognize
12 it.

13 A Yes, I do.

14 Q What is that document?

15 A This document was specifically developed for
16 the Stryker's driver's training course. However,
17 embedded in it is the go and no-go areas.

18 MR. HENKIN: Could we please have that labeled
19 as Exhibit 2.

20 (Deposition Exhibit 2 was marked.)

21 Q With respect to what we've labeled as
22 Exhibit 2, do you see the legend in the lower
23 right-hand corner?

24 A Yes, I do.

25 Q And the designation or the indication for green

1 course, blue course, red course?

2 A Yes, I do.

3 Q The green course has a blue line next to it on
4 the legend; is that correct?

5 A I'm sorry. Explain the question or the
6 instruction.

7 Q If you look at the legend, what color is the
8 line next to green course?

9 A Oh. It's listed as blue.

10 Q What color is the line next to blue course?

11 A Red.

12 Q What is the color --

13 A Green.

14 Q I need to finish the question.

15 With respect to red course, it's --

16 A Green.

17 Q Could you explain why the color of the line is
18 different than the name of the course?

19 MR. LEWIS: Objection as to relevance.

20 THE WITNESS: It is mislabeled.

21 BY MR. HENKIN:

22 Q What should the correct --

23 A In the legend. It is mislabeled in the legend.
24 My knowledge, the courses depicted on the map are
25 correct. The legend has just been reversed.

1 Q With this pen, could you please edit the legend
2 so we can refer to the courses by their proper names.

3 (Witness complies.)

4 Q With respect to the areas in purple on this
5 map, what do those indicate?

6 A The purple indicates areas that through a
7 series of criteria have been listed as potentially able
8 for a vehicle like a Stryker to maneuver into off the
9 road.

10 Q What are those criteria?

11 A I do not recall all of them, but I do know that
12 slope angle, topography, hydrology, and any other
13 restrictions either natural or cultural are considered
14 in determining that.

15 Oh -- and I'm sorry -- one I do recall.
16 Diameter of vegetation density.

17 Q Could you describe what that limitation would
18 be?

19 A That limitation would be -- grasses would not
20 be a limitation to vehicle transition, but brush
21 over -- with a diameter of a stalk or trunk over so
22 many inches would be considered a limitation.

23 Q Do you know how many inches?

24 A I know the maximum is four inches.

25 Q Would it be necessary for -- or does the Army

1 contend that it would be necessary to use all of the
2 purple areas in order to complete the training that is
3 proposed for East Range?

4 MR. LEWIS: Objection. Lack of foundation.

5 THE WITNESS: No, they do not.

6 BY MR. HENKIN:

7 Q What is the basis for your saying they do not?

8 A East Range is being used for Stryker driver's
9 training, and while that requires them on occasion to
10 pull off the road to do certain either training tasks
11 or for administrative reasons, they would not require
12 all of the area that's listed in purple to do that
13 training.

14 Q Are you involved in the decision as to which of
15 these purple areas would be used?

16 A No.

17 Q Who is?

18 A The driver's training course supervisor -- I
19 don't know if he's a supervisor, but there is a
20 driver's training course head instructor -- would
21 request those areas, and they would go through our
22 range control.

23 Q If you're not responsible for making the
24 decision regarding what areas would be requested,
25 what's the basis of your knowledge that they would not

1 require all of these areas?

2 A When we initially went back to ask if any other
3 requirements were to be requested specifically for
4 training, we asked if the driver's training would
5 require any area that had not been presently used, and
6 the answer was no, that sufficient space was there for
7 what they use today.

8 Q Are you familiar with which of the go areas are
9 being presently used today?

10 A I am roughly familiar on the map. I'm very
11 familiar on the ground with those areas.

12 Q Could you please circle in black the areas that
13 are currently used today.

14 (Witness complies.)

15 A Barring minor pulloffs to the roadside. And
16 when I say that, I mean to within five meters of the
17 road or 10 meters of the road.

18 Q Barring that, what?

19 A Barring that that could happen anywhere on the
20 colored roads, they would have to administratively stop
21 for any reason and pull just off the road to allow
22 other traffic to come by. The areas that they would
23 maneuver further than that I believe are the areas that
24 I have highlighted.

25 Q Just for clarification, in range area ER-5,

1 you've drawn a dark line to one side of the road.

2 What's the other limit of the --

3 A Would be the road itself.

4 Q I'm going to try and finish the question just
5 for a clear record. I appreciate it's not normal
6 conversation. It's a little awkward, but it will help
7 the court.

8 So with respect to the area ER-5, only those
9 portions, as the map is situated above the road, which
10 I assume would be to the north of the road, would be
11 used for off-road maneuvers; is that correct?

12 A That is correct.

13 Q So other than the three areas that you have
14 identified in range area ER-5, ER-3A, and then ER-1A
15 going over on to ER-1B, these are the only off-road
16 maneuver areas currently being used; is that correct?

17 A That is correct.

18 Q For purposes of the request to the court for
19 Stryker off-road maneuver training at East Range, these
20 are the only areas that the Army believes that it
21 needs; is that correct?

22 A For Stryker drivers OPNET training, that is
23 correct.

24 Q In terms of what the Army is currently asking
25 the court for leave to do, is there any other training

1 the first page 3-A and the second page 3-B.

2 (Deposition Exhibits 3-A and 3-B were
3 marked.)

4 BY MR. HENKIN:

5 Q Mr. Borne, if you could please describe what
6 we've labeled as Exhibit 3-A.

7 A You have labeled 3-A Kahuku Training Area go/no
8 go area map from the environmental impact statement,
9 Figure 2.5, for the Stryker transformation in Hawai'i.

10 Exhibit 3-B is a generic range division
11 produced map of the Kahuku training area that shows the
12 training areas themselves, some internal road networks,
13 and some prominent features.

14 Q Are you familiar with the areas at Kahuku
15 Training Area where the Army proposes to have Stryker
16 vehicles go off of established roads?

17 A I am.

18 Q What is the basis of that familiarity?

19 A My personal discussions with the 2nd Brigade,
20 either Colonel Banach or S3 operations officer.

21 Q Who is that?

22 A Ben Eisner, Major Ben Eisner, with an E.

23 Q Would you be able to mark with this black pen
24 the areas at Kahuku where the Army seeks the
25 opportunity to go off road with Stryker vehicles?

1 A Yes, I can.

2 Q Thank you.

3 (Witness complies.)

4 A While 2nd Brigade has not completely developed
5 their training plan, these are the general areas we
6 discussed.

7 Q Other than the areas that you've outlined on
8 Exhibit 3-A, are there any other areas that the Army is
9 currently asking the court to allow Strykers to perform
10 off-road maneuvers?

11 A Only on designated road systems connecting
12 those areas together in the Kahukus.

13 Q But with respect to maneuvers off of existing
14 roads, are these four areas outlined in black on
15 Exhibit 3-A the only ones that the Army is currently
16 asking the court for permission to use?

17 MR. LEWIS: Objection. Asked and answered.

18 THE WITNESS: Yes, for off-road maneuver.

19 BY MR. HENKIN:

20 Q How will the Stryker vehicles using these
21 off-road maneuvers at Kahuku Training Area know that
22 they are within the limits of the areas you've
23 designated on 3-A?

24 MR. LEWIS: Objection. Lack of foundation.

25 THE WITNESS: There will be two ways. One, the

1 have witnessed the training, discussed with the
2 instructors and their supervisors the training that
3 they do today.

4 In the Kahukus, my experience is only
5 topographically having visually seen the areas myself
6 in the past, knowing the vehicle maneuver capabilities,
7 and for the Stryker discussions with 2nd Brigade
8 personnel, Colonel Banach, and his operations officer.

9 MR. HENKIN: Why don't we take a five-minute
10 break.

11 (Recess taken, 10:16-10:25 a.m.)

12 BY MR. HENKIN:

13 Q Mr. Borne, is the Army seeking to use -- sorry.
14 Try again.

15 As part of the Army's current request to the
16 court for training involving Stryker vehicles, is it
17 seeking any use of the area that was recently purchased
18 from the Parker Ranch on the island of Hawai'i, known
19 as the West Pohakoloa Training Area Acquisition Area?

20 A Not for initial operating capabilities for 2nd
21 Brigade.

22 Q Could you please clarify what you mean by not
23 for initial operating capabilities?

24 A Not use the Keamuku -- recently purchased
25 Keamuku parcel for 2nd Brigade to reach its capacity to

1 deploy.

2 Q Is it asking the court for use of the Keamuku
3 parcel for any other purpose?

4 A No, it is not.

5 Q Does it have plans to use the Keamuku parcel
6 for any other purpose between now and the time that the
7 2nd Brigade deploys?

8 A For training, no. I am not certain if there's
9 any implementation of any fire management or other
10 environmental concerns that have to be implemented for
11 emergency reasons, like wild fire. But not for
12 training until that time.

13 Q Who would know if there were any plans to do
14 any nontraining activities on the Keamuku parcel
15 between now and the time of deployment?

16 A At this point, I do not believe anyone is aware
17 of them, that they need to implement any immediately.
18 However, should wild fires become a problem,
19 suppression, fire-break roads, those things may have to
20 be implemented or managed.

21 Q When you refer to the time of the 2nd Brigade's
22 deployment, what time is that?

23 A Second brigade, I am not privy to the exact
24 deployment of 2nd Brigade.

25 Q Has it received deployment orders?

1 practice tracer is the HEP-TP-T. And the 105
2 millimeter canister is as described.

3 Q With respect to the 900 -- well, how many
4 rounds of 105 millimeter TPDS rounds does the Army
5 expect to fire at Pohakoloa should the court grant
6 their request?

7 A I would have to review the gunnery tables that
8 describes the number of rounds that are fired for each
9 gunnery table because this is exactly that. It would
10 match that. It would not be a reflection on how many
11 are allocated for a year because we're only asking to
12 do OPNET training at Range 11T and not collective
13 training with the gun system on another range.

14 I would have to look at the table, but I
15 believe it's around 15 to 20 rounds depending on the
16 variation.

17 Q Is this the document you're referencing?

18 A This is an extract of those tables, that is
19 correct.

20 MR. HENKIN: Why don't we have that labeled as
21 Exhibit No. 18.

22 (Deposition Exhibit 18 was marked.)

23 Q Based on your review of Exhibit 18, could you
24 give an estimate of the number of each of the various
25 types of 105 millimeter rounds that the Army is asking

1 the court for leave to fire between now and the time of
2 the 2nd Brigade's deployment?

3 A I will have to go through and count it up, but
4 yes, I can.

5 Q Well, if it's a question of simple math, could
6 you just describe how you would calculate the number of
7 rounds

8 A It gives you the ammunition and number of
9 rounds in the ammunition column of each one of the
10 tables that it describes in here. The first one that
11 would use the 105 millimeter cannon round is listed in
12 here as CT VI. And there's no page number, but it
13 would be VI.

14 Q In order to calculate the total number of
15 rounds, how would you do that?

16 A You would go through and add all of those under
17 those specific titles as it lists it. Like the first
18 one would be the second task, A2 one round of high
19 explosive plastic training practice tracer, HEP-TP. So
20 there's one.

21 To capture those, you would go through the
22 remaining tables that are in here or just the -- not
23 the CALFEX but the Tables VI, VII, and VIII. The
24 advance gunnery collective tables would not be fired.

25 Q Where would the advance gunnery tables be

1 fired?

2 A They would have to be fired at the National
3 Training Center. It requires a much larger range, and
4 in fact, they're not reflected in this briefing.

5 Q What does the acronym CT refer to?

6 A I do not know, although I do know they're
7 commonly called tables, Table VI, Table VII, Table
8 VIII. So while I can't say what the C is, I know that
9 the T is table.

10 Q We'll go with table.

11 A I'll look through here and see if I can find
12 the acronym.

13 Q No. That's okay.

14 A But they are normally listed as Table VI, VII,
15 and VIII.

16 Q I'll go on the acronym finder.

17 Now, with respect to the number of rounds
18 listed in Tables VI, VII, and VIII, does that reflect
19 the total number of rounds fired by a single Stryker
20 that is in the mobile gun system configuration?

21 A That is correct.

22 Q Would you then have to multiply the number of
23 rounds by the number of assigned Strykers in the MGS
24 configuration that are assigned to the 2nd Brigade?

25 A Correct.

1 Q Do you know off the top of your head the
2 number?

3 A There's 39 that are assigned, if I'm not
4 mistaken, and I don't know if any of those are taken
5 off and put into what they call the maintenance -- for
6 lack of a better term, a maintenance pool. I would
7 have to go back and check, and Colonel Banach would
8 know exactly how many he was supposed to get.

9 Q I'm showing you a document that was included in
10 the Army's disclosure, Annex B Stryker Vehicle
11 Disposition. Does that help refresh your recollection?

12 A Yes, it does.

13 Q Therefore, how many Strykers in the MGS
14 configuration would need to be trained?

15 A Twenty-seven would need to do the gunnery
16 table. Twenty-seven crews and vehicles would need to
17 do the gunnery table.

18 Q So if one were to multiply the number of rounds
19 listed in Tables VI, VII, and VIII by 27, would that
20 give you the total number of rounds?

21 A Yes, that would give you the total numbers we
22 would need to fire.

23 Q Does that assume that the crews were fully
24 successful the first time around?

25 A That is an assumption.

1 Q If they were not fully successful, they would
2 need additional rounds, I assume?

3 A If they were not fully successful, they would
4 need additional rounds for that task that they failed.

5 Q If you could please reference Table V, task
6 A2S, do you see that one?

7 A Yes.

8 Q There's reference to one round SLAP, all caps,
9 hyphen T. Do you see that?

10 A Yes, I do.

11 Q To what does that refer?

12 A I don't know the specific acronym, but I do
13 know what that is. It's a short-range training
14 ammunition with a tracer. So it's a substitute weapon
15 system.

16 Q Substitute for what?

17 A If I'm not mistaken, it's a substitute for the
18 large caliber weapon system. In other words, it's a
19 bore device that could be used for the subcaliber
20 system.

21 Q If I understand correctly, this would be firing
22 out of the 105 millimeter gun but with a smaller
23 caliber --

24 A I don't know that it fires through the bore,
25 but it may be attached to the barrel or something to

1 STATE OF HAWAI'I)
2 CITY AND COUNTY OF HONOLULU) SS.

3
4 I, CARI VALLO, CSR No. 252, a Notary Public in
and for the State of Hawai'i, do hereby certify:

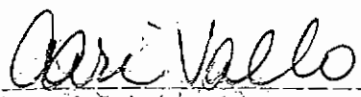
5
6 That on Monday, December 4, 2006, at 9:36 a.m.,
appeared before me RONALD L. BORNE, the witness whose
7 testimony is contained herein; that prior to being
examined, the witness was duly sworn or affirmed; that
8 the proceedings were taken in computerized machine
shorthand by me and were thereafter reduced to print
9 under my supervision; that the foregoing represents, to
the best of my ability, a correct transcript of the
proceedings had in the foregoing matter;

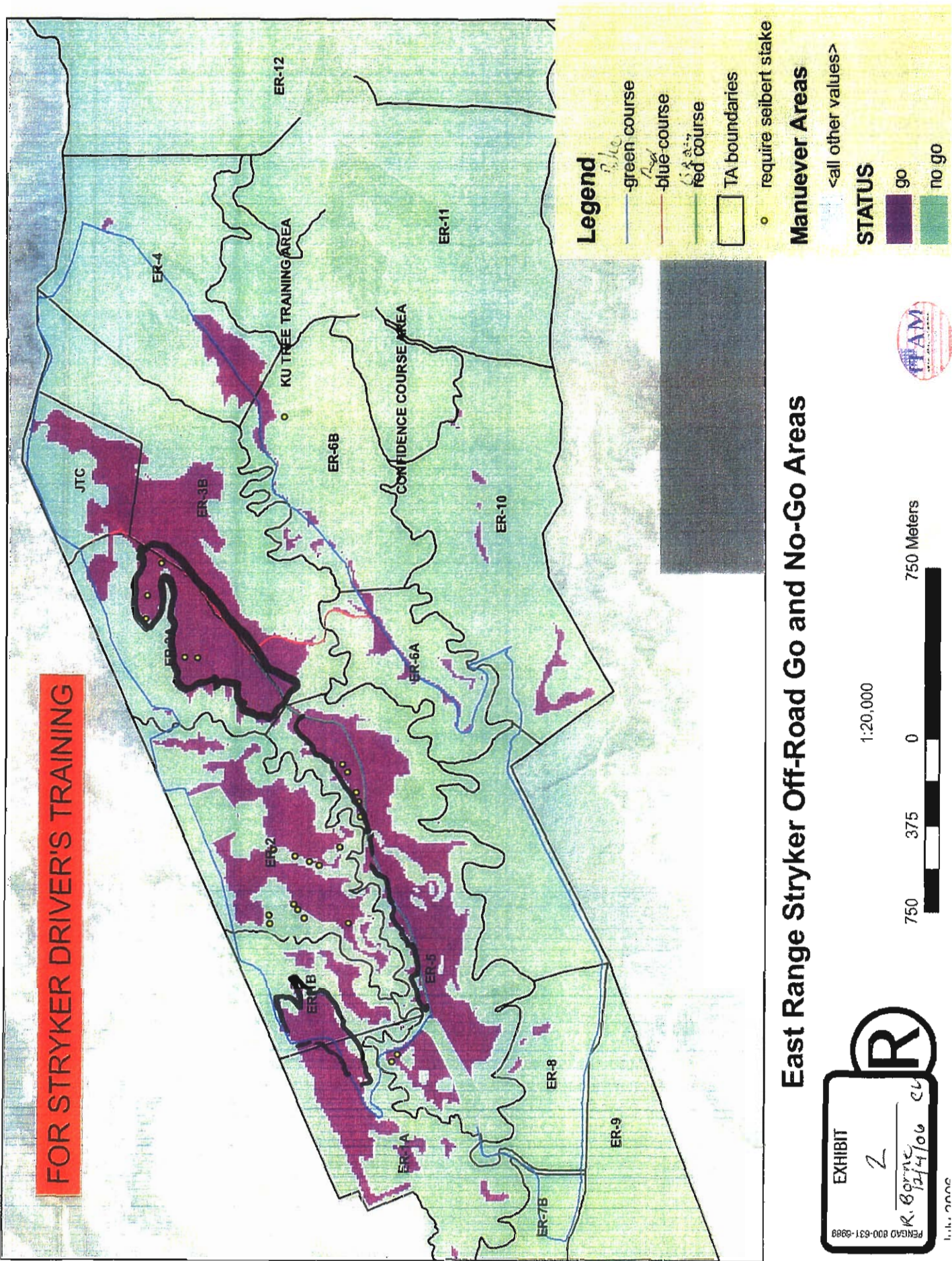
10
11 That, if applicable, the witness was notified
through counsel, by mail, or by telephone to appear and
12 sign; that if the transcript is not signed, either the
reading and signing were waived by the witness and all
13 parties or the witness has failed to appear and the
original is therefore kept on file without signature
pursuant to Court rules;

14
15 That pursuant to HRCF 30(f)(1), the original
will be forwarded to noticing counsel for retention,
16 unless otherwise agreed to by all counsel.

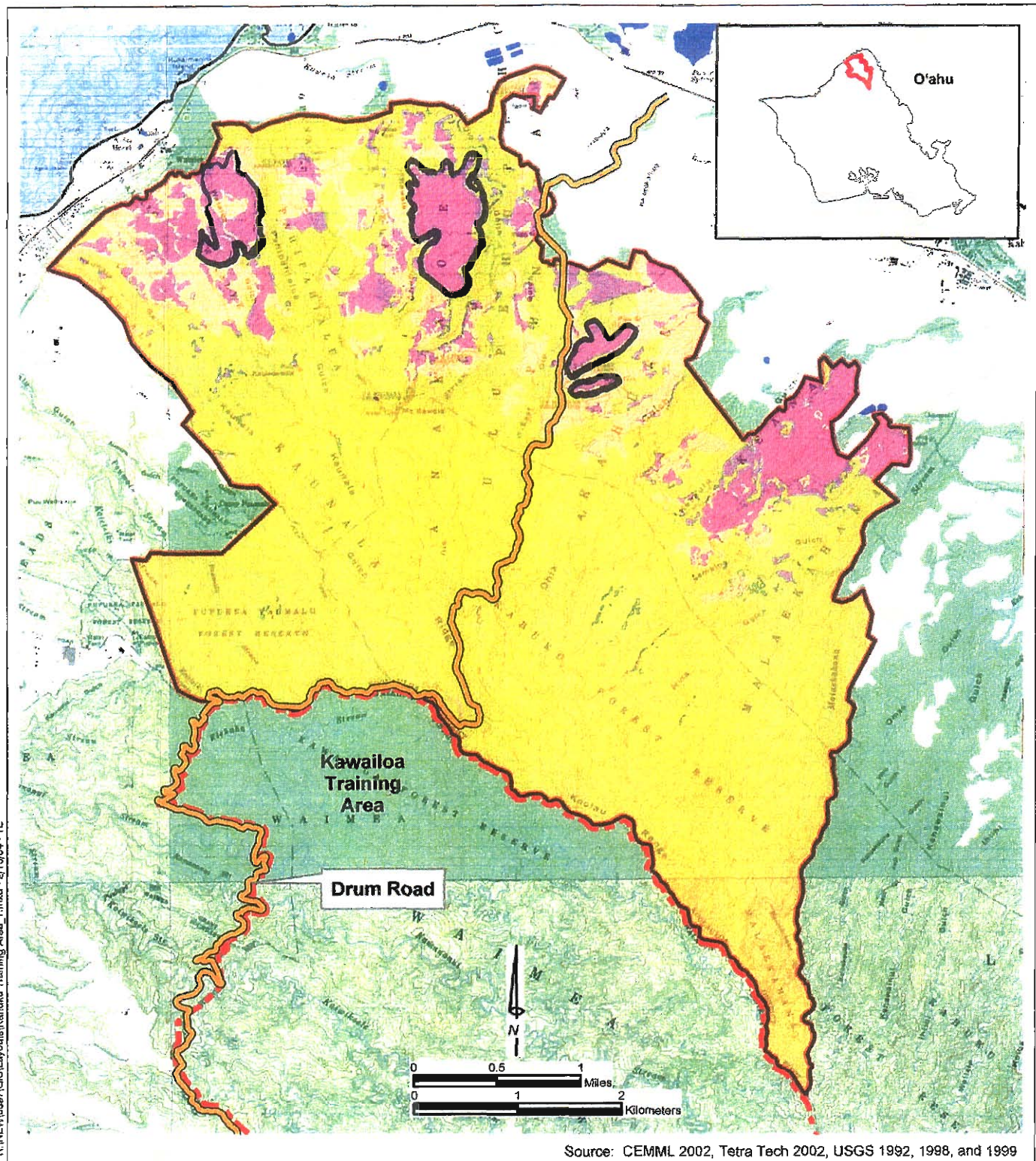
17
18 I further certify that I am not counsel for any
of the parties hereto nor in any way interested in the
outcome of the cause named in the caption.

19
20 Dated this 8th day of December, 2006, in
Honolulu, Hawai'i.

21
22 
23 Notary Public, State of Hawai'i
My Commission expires: November 6, 2008
24 CARI VALLO, CSR No. 252, RPR
25



R:\NEW\J997\GIS\Layouts\Kahuku Training Area_1.mxd - 2/19/04 - YE



Kahuku Training Area is bounded on the north by private agricultural lands south of the Kamehameha Highway, by the KLOA on the south, and by private and public lands on the remaining perimeter.

Legend

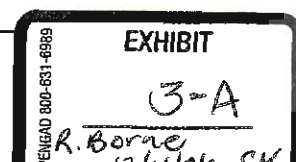
- Kahuku Training Area Boundary
- Kawaihoa Training Area Boundary
- State Land Use District Boundary
- Stryker maneuver area
- Strykers restricted to roads (no off road maneuvers)
- Drum Road
- Water

Kahuku Training Area

O'ahu, Hawai'i

Figure 2-5

2-10



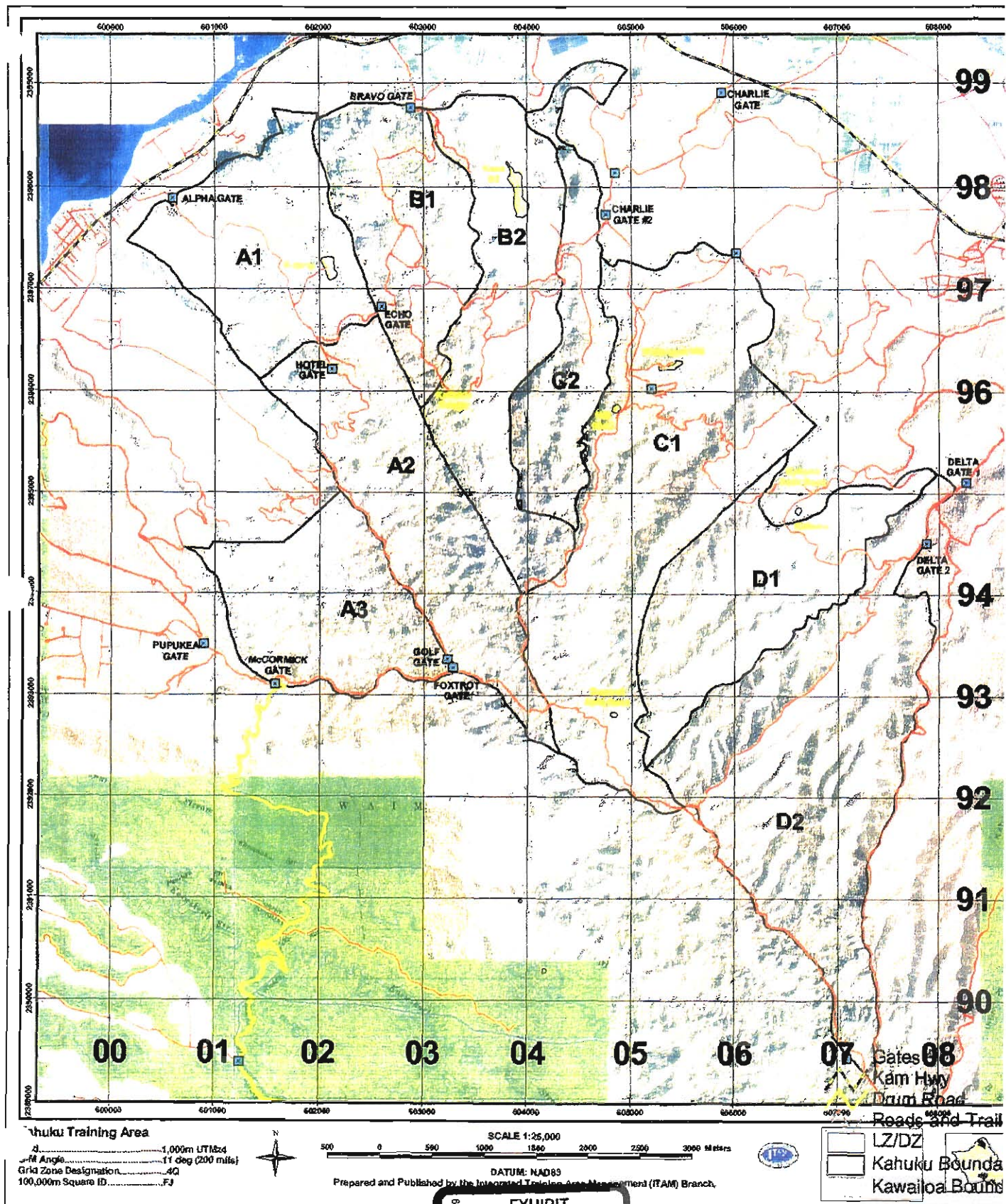
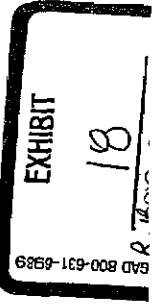


EXHIBIT
 3-B
 R. Borne
 12/4/06 CV

ANNEX H (MGS GUNNERY SOP)



100001

MGS Gunnery SOP

00002

Preparatory Crewmember Training

- Fundamentals of safety, maintenance, and communication
 - Safety:
 - Mount/Dismount vehicle
 - Emergency situations
 - Rollover drills
 - Fire evac drills
 - Ammo fire
 - Loss of power, steering, or brakes
 - Maintenance:
 - PMCS
 - Prep to Fire Checks (**Should be conducted weekly**)
 - AACs (**Should be conducted monthly**)
 - Basic recovery techniques
 - Operator troubleshooting procedures
 - Communication:
 - Use FM and digital commo procedures
 - Use visual signaling techniques

Note: These tasks are continuously trained all year round during daily operations.

00003

Crew Skills Training

- Phase I Fire control training:
 - Switchology training (training to use all switches and controls in a rapid manner).
 - Prep-to-fire checks (checks from operators manual) MGS TM is not in final copy yet.
- Phase II Manipulation drills:
 - Gun laying exercises (trains the VC/Gnr in the fundamentals of weapon system manipulation; EAR).
 - Target designating exercises (Individual training by crew station with an evaluator).
 - Tracking and manipulation training (utilizing large boards designed to improved hand eye coordination and progresses to more advanced course).
 - Target hand off (individual VC/GNR progressing from target to target).
- These tasks are continuously trained throughout the year and are trained/supported in Embedded trainer as well as IDAGTS/AGTS.

00004

MGS Crew Gunnery Skills Test

- Crewmembers must successfully pass the CGST within six months before firing.
- Stations:
 - 1 AFVID *OPNET Entry Requirement*
 - 2 Ammo ID *OPNET Entry Requirement*
 - 3 M240 *OPNET Entry Requirement*
 - 4 M2 *OPNET Entry Requirement*
 - 5 Firing pin
 - 6 Auto-load
 - 7 Boresight
 - 8 Manual Loading
 - 9 Misfire procedures
 - 10 Gunner's station
 - 11 Digital Spotrep *OPNET Entry Requirement*

Preliminary Gunnery Training

- Thermal mode training
 - Training use of vehicle thermal optics.
 - Can conduct using Embedded Trainer (ET)/AGTS.
 - Thermal AFVID
- Target acquisition training
 - Correct, rapid target acquisition and classification.
 - Can conduct using Embedded Trainer (ET)/AGTS.
- Range Estimation/Determination training
 - Use of vehicle optics and dismounted methods.

00006

Preliminary Gunnery Training

- Digital training
 - Crews will use the IDAGTS starting in Jan 07 until the MGS arrive.
 - Crews then will use the embedded trainer (ET) a minimum of two hours per week.
 - Gunners will be evaluated by VC/PSG.
 - VCs will be evaluated by PSG.
 - Crews should cross-train a minimum of two hours a month.

MGS Combat Tables

- Semi annual qualification requirement
- Basic Combat Tables
 - CT I: Basic Gunnery Skills, (Individual)
 - CT II: Basic Gunnery Skills, (Crew/Individual)
 - CT III: Basic Training Course (Crew)
 - CT IV: Crew Proficiency Course (CPC) Gate CT
 - *Must qualify within 6 months of CT VIII.*
- Intermediate Combat Tables
 - CT V: Preliminary MGS Weapons Training
 - CT VI: Intermediate Main Gun Training
 - CT VII: Intermediate Training Course
 - CT VIII: Intermediate Qualification Course (Gate CT)
 - *Must qualify to fire CT X.*
 - *Must qualify within 6 months of CTC live fire.*
- Advanced Combat Tables
 - CT IX: Collective Training Course (Section/Platoon)
 - CT X: Collective Qualification Course (Platoon)

Note: All CTs may be fired dry, device-based, or both except CT VIII and CT X

00008

Basic Combat Tables

- Basic Combat Tables
 - CT I: Basic Gunnery Skills, (Individual)
 - CT II: Basic Gunnery Skills, (Crew/Individual)
 - CT III: Basic Training Course (Crew)
 - CT IV: Crew Proficiency Course (CPC) Gate CT
- *Must qualify within 6 months of CT VIII.*
 - These may be fired Dry or device based.
 - Example Link

00009



CTI

TASK	CONDITIONS	STANDARDS	CREW DUTIES	EFFECT	GO/NO-GO
1. Negotiate a tracking board from a stationary MGS (gunner).	4 tracking board solutions. Use CMS, TIS, and auxiliary sight.	Track each board, in sequence, within 60 seconds.	SAT UNSAT		GO NO-GO
2. Negotiate a tracking board from a stationary MGS (VC).	4 tracking board solutions. Use CDU and CPV.	Track each board, in sequence, within 60 seconds.	SAT UNSAT		GO NO-GO
3a. Engage targets from a stationary MGS.	10 stationary targets. Use the CMS.	Hit 7 of 10 targets within 60 seconds.	SAT UNSAT	HIT MISS	GO NO-GO
3b. Engage targets from a stationary MGS.	10 stationary targets. Use the auxiliary sight.	Hit 7 of 10 targets within 60 seconds.	SAT UNSAT	HIT MISS	GO NO-GO
3c. Engage targets from a stationary MGS. (VC)	10 stationary targets. Use the CDU, manual controls.	Hit 7 of 10 targets within 60 seconds.	SAT UNSAT	HIT MISS	GO NO-GO
3d. Engage targets from a stationary MGS.	10 stationary targets. Use the auxiliary sight, manual controls.	Hit 7 of 10 targets within 60 seconds.	SAT UNSAT	HIT MISS	GO NO-GO
4a. Apply one-half target form correction from a stationary MGS.	1 stationary target. Use the CMS. (First round sensed as "over" or "short.")	Hit target within 8 seconds after first-round miss in elevation.	SAT UNSAT	HIT MISS	GO NO-GO
4b. Apply one-half target form correction from a stationary MGS.	1 stationary target. Use the CMS. (First round sensed as "doubtful.")	Hit target within 8 seconds after first-round miss in deflection.	SAT UNSAT	HIT MISS	GO NO-GO
5. Lay the main gun from the CDU. (VC)	10 targets presented individually. Use the commander's control handle (CCH).	Lay main gun within 10 seconds (each target evaluated separately).	SAT UNSAT	HIT MISS	GO NO-GO
6. Select or conduct announced switches or functions from the gunner's station (switchology) (gunner).	10 switches and functions. Use the CMS.	Select and conduct announced switches and functions within 5 seconds.	SAT UNSAT		GO NO-GO
7. Select and conduct announced switches or functions from the VC's station.	10 switches and functions.	Select and conduct announced switches or functions within 5 seconds.	SAT UNSAT		GO NO-GO
8. Acquire and designate targets from the VC position.	10 targets (sector predetermined).	Acquire and designate each target within 7 seconds.	SAT UNSAT		GO NO-GO

00010



TASK	CONDITIONS	STANDARDS	CREW/DUTIES	EFFECT	GO/NO-GO
1. Engage target from stationary MGS.	1 stationary tank. Use CMS, stabilization on.	Hit target within 6 seconds.	SAT UNSAT	HIT MISS	GO NO-GO
2. Engage target from stationary MGS.	1 stationary tank. Use TIS, stabilization on.	Hit target within 6 seconds.	SAT UNSAT	HIT MISS	GO NO-GO
3. Engage target from stationary MGS.	1 stationary tank. Use AUX (announced range), stabilization on.	Hit target within 6 seconds.	SAT UNSAT	HIT MISS	GO NO-GO
4. Engage target from stationary MGS.	1 set of troops. Use CMS/TIS, stabilization on.	Hit target within 6 seconds.	SAT UNSAT	HIT MISS	GO NO-GO
5. Engage target from stationary MGS.	1 moving PC. Use CMS, stabilization on.	Hit target within 6 seconds.	SAT UNSAT	HIT MISS	GO NO-GO
6. Engage target from stationary MGS.	1 moving tank. Use TIS, stabilization on.	Hit target within 6 seconds.	SAT UNSAT	HIT MISS	GO NO-GO
7. Engage target from stationary MGS.	1 moving helicopter. Use CMS/TIS, stabilization on.	Hit target within 6 seconds.	SAT UNSAT	HIT MISS	GO NO-GO
8. Engage target from stationary MGS.	1 moving PC. Use CMS/ TIS, stabilization off.	Hit target within 6 seconds.	SAT UNSAT	HIT MISS	GO NO-GO
9. Engage target from stationary MGS.	1 moving tank. Use AUX (announced range), stabilization on.	Hit target within 6 seconds.	SAT UNSAT	HIT MISS	GO NO-GO
10. Engage target from stationary MGS.	1 moving PC. Use AUX (announced range), stabilization on.	Hit target within 6 seconds.	SAT UNSAT	HIT MISS	GO NO-GO
11. Engage target from stationary MGS.	1 moving tank. Use AUX (announced range), manual mode.	Hit target within 10 seconds.	SAT UNSAT	HIT MISS	GO NO-GO
12. Engage target from stationary MGS.	1 moving PC. Use AUX (announced range), manual mode.	Hit target within 10 seconds.	SAT UNSAT	HIT MISS	GO NO-GO
13. Engage target from stationary MGS.	1 moving evasive tank. Use CMS/TIS, stabilization on.	Hit target within 6 seconds.	SAT UNSAT	HIT MISS	GO NO-GO
14. Engage target from stationary MGS.	1 moving PC. Use CDU, stabilization on.	Hit target within 6 seconds.	SAT UNSAT	HIT MISS	GO NO-GO
15. Engage target from stationary MGS.	1 moving tank. Use CDU, stabilization on.	Hit target within 6 seconds.	SAT UNSAT	HIT MISS	GO NO-GO
16. Engage target from stationary MGS.	1 stationary tank. Use CPV or CDU, stabilization on.	Hit target within 6 seconds.	SAT UNSAT	HIT MISS	GO NO-GO
17. Engage target from stationary MGS.	1 moving PC. Use CPV or CDU stabilization on.	Hit target within 6 seconds.	SAT UNSAT	HIT MISS	GO NO-GO
18. Engage target from stationary MGS.	1 stationary PC. Use CPV or CDU, stabilization off.	Hit target within 6 seconds.	SAT UNSAT	HIT MISS	GO NO-GO
19. Engage target from stationary MGS.	1 moving tank. Use CPV or CDU, stabilization off.	Hit target within 6 seconds.	SAT UNSAT	HIT MISS	GO NO-GO
20. Engage target from stationary MGS.	1 set of troops. Use CPV or CDU stabilization on.	Hit target within 6 seconds.	SAT UNSAT	HIT MISS	GO NO-GO

00011

TASK	CONDITIONS	CT IIIA	STANDARDS	CREW DUTIES	EFFECT	GO/NO-GO
1. Engage target from a defensive firing position.	Move from turret-down to hull-down. 1 stationary PC, 900 to 1,000 meters. Use CMS.		Hit target within 10 seconds.	SAT UNSAT	HIT MISS	GO NO-GO
2. Engage target from a defensive firing position.	Move from turret-down to hull-down. 1 stationary tank, 900 to 1,000 meters. Use the AUX. CBRN environment.		Hit target within 10 seconds.	SAT UNSAT	HIT MISS	GO NO-GO
3. Engage target from a moving MGS.	1 stationary tank, 1,400 to 1,600 meters. Use TIS.		Hit target within 10 seconds.	SAT UNSAT	HIT MISS	GO NO-GO
4. Engage target from a moving MGS.	1 moving tank, 1,200 to 1,400 meters. Use CMS.		Hit target within 10 seconds.	SAT UNSAT	HIT MISS	GO NO-GO
5. Engage target from a defensive firing position.	1 stationary flank tank, 1,600 to 1,800 meters. ELRF failure (determine range using stadia reticle). Stabilization failure.		Hit target within 10 seconds.	SAT UNSAT	HIT MISS	GO NO-GO
6. Engage target from a defensive firing position.	1 stationary tank in defilade, 800 to 1,000 meters. Use CPV or CDU.		Hit target within 10 seconds.	SAT UNSAT	HIT MISS	GO NO-GO
7. Engage target from a moving MGS during a short halt.	1 stationary tank, 1,400 to 1,600 meters. Stabilization failure.		Hit target within 10 seconds.	SAT UNSAT	HIT MISS	GO NO-GO
8. Engage target from a defensive firing position.	1 stationary flank PC, 1,200 to 1,500 meters. Two-man crew. Stabilization failure. Use CDU.		Hit target within 10 seconds.	SAT UNSAT	HIT MISS	GO NO-GO
9. Engage target from a defensive firing position.	1 stationary PC, 800 to 1,200 meters. Two-man crew. ELRF failure. Use CPV or CDU.		Hit target within 10 seconds.	SAT UNSAT	HIT MISS	GO NO-GO
10. Engage multiple targets from a defensive firing position.	2 stationary tanks, 1,600 to 2,000 meters. Use CMS.		Hit targets within 20 seconds.	SAT UNSAT	HIT MISS	GO NO-GO
11. Engage multiple targets from a defensive firing position.	1 stationary tank, 1,400 to 1,600 meters; 1 stationary flank tank, 1,300 to 1,500 meters. Use CPV or CDU. Two-man crew.		Hit targets within 20 seconds.	SAT UNSAT	HIT MISS	GO NO-GO
12. Engage target from a defensive firing position.	1 moving helicopter, 1,400 to 1,600 meters. Use CMS.		Hit target within 20 seconds.	SAT UNSAT	HIT MISS	GO NO-GO
13. Engage multiple targets from a moving MGS.	1 set troops, 400 to 600 meters; 1 set of troops, 700 to 900 meters. Use CMS.		Hit targets within 20 seconds.	SAT UNSAT	HIT MISS	GO NO-GO
14. Engage multiple targets from a defensive firing position.	1 moving tank, 1,400 to 1,600 meters; 1 stationary tank, 1,300 to 1,500 meters. Use CMS.		Hit targets within 20 seconds.	SAT UNSAT	HIT MISS	GO NO-GO
15. Engage multiple targets from a moving MGS.	1 stationary tank, 900 to 1,100 meters; 1 moving tank, 1,600 to 1,800 meters. Use CDU. Two-man crew.		Hit targets within 20 seconds.	SAT UNSAT	HIT MISS	GO NO-GO

00012

CT IIIB

TASK	CONDITIONS	STANDARDS	CREW DUTIES	EFFECT	GO/ NO-GO
1. Engage multiple targets from a defensive firing position.	2 stationary PCs, 1,100 to 1,300 meters. Use TIS.	Hit targets within 20 seconds.	SAT UNSAT	HIT MISS	GO NO-GO
2. Engage target from a moving MGS.	1 moving tank, 1,200 to 1,400 meters. Use TIS.	Hit target within 10 seconds.	SAT UNSAT	HIT MISS	GO NO-GO
3. Engage target from a moving MGS.	1 moving tank, 1,200 to 1,400 meters. Use CPV or CDU	Hit target within 10 seconds.	SAT UNSAT	HIT MISS	GO NO-GO
4. Engage target from a defensive firing position.	1 evasive tank, 900 to 1,100 meters. Use TIS.	Hit target within 10 seconds.	SAT UNSAT	HIT MISS	GO NO-GO
5. Engage target from a defensive firing position.	1 moving tank, 1,400 to 1,600 meters. Use TIS.	Hit target within 10 seconds.	SAT UNSAT	HIT MISS	GO NO-GO
6. Engage multiple targets from a moving MGS.	2 stationary tanks, 900 to 1,100 meters. Use TIS. CBRN environment.	Hit targets within 20 seconds.	SAT UNSAT	HIT MISS	GO NO-GO
7. Engage multiple targets from a moving MGS.	2 stationary tanks, 900 to 1,100 meters. Use TIS.	Hit targets within 20 seconds.	SAT UNSAT	HIT MISS	GO NO-GO
8. Engage multiple targets from a defensive firing position.	1 stationary tank, 1,400 to 1,600 meters; 1 moving tank, 900 to 1,100 meters. Use TIS.	Hit targets within 20 seconds.	SAT UNSAT	HIT MISS	GO NO-GO

00013

CT IV CPC

Task	Ammunition	Targets	Conditions
Task A1. Defense.	Dry/device-based	Stationary frontal PC, 700 to 900 meters, exposed for 60 seconds (gunner).	CMS, MGC, ELRF failure
Task A2. Defense.	Dry/device-based	Infantry squad, 100 to 300 meters, exposed for 50 seconds (gunner).	None
Task A3. Offense.	Dry/device-based	Moving technical truck, 500 to 700 meters, exposed for 50 seconds (VC).	CWS, short halt
Task A4S. Defense.	Dry/device-based	Stationary technical truck, 300 to 500 meters, exposed for 50 seconds (VC).	CWS
Task A5. Defense.	Dry/device-based	Wall (infantry passage), 500 to 700 meters, exposed for 50 seconds (gunner).	CBRN (hatches closed, protective mask on)
Task B1. Offense.	Dry/device-based	RPG team, 100 to 300 meters, exposed for 50 seconds (gunner).	None
Task B2. Offense.	Dry/device-based	Stationary frontal tank, 1,200 to 1,400 meters, exposed for 50 seconds (gunner).	CBRN (hatches closed, protective mask on)
Task B3. Defense.	Dry/device-based	Window (room clearing), 500 to 700 meters, exposed for 50 seconds (gunner).	None
Task B4S. Defense.	Dry/device-based	Sniper in 2d-story window, 100 to 300 meters, exposed for 50 seconds (VC).	GPCH failure
Task B5. Offense.	Dry/device-based	Bunker, 400 to 600 meters, exposed for 50 seconds (gunner).	None

00014

CTV

MGS Table V—Preliminary MGS Weapons Training				
TASK	AMMUNITION	TARGET 1	TARGET 2	CONDITIONS
Task A1. Defense	100 rounds Caliber .50	RPG team, 100 to 300 meters, exposed for 50 seconds (VC).	Stationary technical truck, 300 to 500 meters, exposed for 50 seconds (VC).	Coax expended
Task A2S. Offense	1 round SLAP-T	Window (room clearing), 500 to 700 meters, exposed for 50 seconds (gunner).		None
Task A3. Defense	1 round SLAP-T	Stationary frontal tank, 1,000 to 1,200 meters, exposed for 60 seconds (gunner).		CMS, MGC, ELRF failure
Task A4. Defense	100 rounds 7.62mm	RPG team, 300 to 500 meters, exposed for 50 seconds (gunner).	Sniper in window, 100 to 300 meters, exposed for 50 seconds (gunner).	CBRN (hatches closed, protective mask on)
Task A5. Offense	100 rounds Caliber .50	RPG team, 300 to 500 meters, exposed for 50 seconds (VC).	RPG team, 200 to 400 meters, exposed for 50 seconds (VC).	Coax expended, short halt
Task B1. Defense	50 rounds 7.62mm	Infantry squad, 100 to 300 meters, exposed for 50 seconds (VC).		GPCH failure
Task B2. Offense	50 rounds 7.62mm	Sniper in 2d-story window, 100 to 300 meters, exposed for 50 seconds (gunner).		None
Task B3S. Defense	4 rounds SLAP-T	Wall (infantry passage), 500 to 700 meters, exposed for 50 seconds (gunner).		None
Task B4. Defense	4 rounds SLAP-T	Bunker, 400 to 600 meters, exposed for 50 seconds (gunner).	Bunker, 600 to 800 meters, exposed for 50 seconds (gunner).	CBRN (hatches closed, protective mask on)
Task B5. Offense	100 rounds 7.62mm	Infantry squad, 200 to 400 meters, exposed for 50 seconds (gunner).	Stationary technical truck 500 to 700 meters, exposed for 50 seconds (gunner).	None

00015

Intermediate Gunnery

- CT V: Preliminary MGS Weapons Training
- CT VI: Intermediate Main Gun Training
- CT VII: Intermediate Training Course
- CT VIII: Intermediate Qualification Course (Gate CT)
 - *Must qualify to fire CT X.*
 - *Must qualify within 6 months of CTC live fire.*
- These tables may be fired dry or device based except CT VIII.
- Example Link

CT VI

TASK	AMMUNITION	TARGET 1	TARGET 2	CONDITIONS
Task A1S. Offense	100 rounds 7.62-mm	RPG team, 100 to 300 meters, exposed for 50 seconds (gunner).	Moving technical truck, 300 to 500 meters, exposed for 50 seconds (gunner).	None
Task A2. Defense	1 round HEP-TP-T	Wall (infantry passage), 400 to 600 meters, exposed for 50 seconds (VC).		GPCH failure
Task A3. Defense	3 rounds HEAT-TP-T	Stationary frontal PC, 900 to 1,100 meters, exposed for 60 seconds (gunner).	Moving flank PC, 800 to 1,000 meters, exposed for 60 seconds (gunner).	CMS, MGC, ELRF failure
Task A4. Offense	100 rounds caliber .50	RPG team, 200 to 400 meters, exposed for 50 seconds (VC).	Moving technical truck, 500 to 700 meters, exposed for 50 seconds (10-second delay) (VC).	Coax expended, short halt
Task A5. Defense	1 Canister round 75 rounds 7.62-mm	10-man infantry squad, 100 to 300 meters, exposed for 50 seconds (gunner).	Stationary technical truck, 700 to 900 meters, exposed for 50 seconds (10-second delay) (gunner).	CBRN (hatches closed, protective mask on)
Task B1S. Offense	100 rounds 7.62mm	RPG team, 200 to 400 meters, exposed for 50 seconds (gunner).	Sniper in 2d-story window, 200 to 400 meters, exposed 50 seconds (gunner).	None
Task B2. Offense	1 Canister round 25 rounds 7.62mm	10-man infantry squad, 100 to 300 meters, exposed for 50 seconds (gunner).		None
Task B3. Offense	1 round HEAT-TP-T 50 rounds 7.62mm	Moving flank PC, 500 to 700 meters, exposed for 50 seconds (gunner).	RPG team, 500 to 700 meters, exposed for 50 seconds (gunner).	None
Task B4. Defense	2 rounds HEAT-TP-T	Bunker, 500 to 700 meters, exposed for 50 seconds (gunner).	Bunker, 700 to 900 meters, exposed for 50 seconds (gunner).	CBRN (hatches closed, protective mask on)
Task B5. Defense	1 round TPDS-T	Stationary frontal tank, 1,400 to 1,600 meters, exposed for 50 seconds (gunner).		None

CT VII

TASK	AMMUNITION	TARGET 1	TARGET 2	TARGET 2	CONDITIONS
Task A1. Defense	1 canister round 25 rds 7.62mm 1 rd HEAT-TP-T	10-man Infantry squad, 100 to 300 meters, exposed for 50 seconds (gunner).	Bunker, 400 to 600 meters, exposed for 50 seconds (gunner).		None
Task A2. Defense	2 rds HEP-TP-T 50 rds 7.62mm	Wall (Infantry passage), 300 to 500 meters, exposed for 60 seconds (gunner).	RPG team, 500 to 700 meters, exposed for 60 seconds (gunner).		CMS, MGC, ELRF failure
Task A3. Defense	1 canister round 1 rd HEP-TP-T 75 rds 7.62mm	10-man Infantry squad, 100 to 300 meters, exposed for 50 seconds (gunner).	Sniper in 2d-story window, 200 to 400 meters, exposed for 50 seconds (gunner).	Window (room clearing), 500 to 700 meters, exposed for 75 seconds (gunner).	CBRN (hatches closed, protective mask on)
Task A4S. Offense	1 rd TPDS-T 100 rds 7.62mm	Moving flank tank, 1,200 to 1,400 meters, exposed for 50 seconds (gunner).	Stationary technical truck, 500 to 700 meters, exposed for 75 seconds (gunner).	RPG team, 300 to 500 meters, exposed for 60 seconds (15-second delay) (gunner).	None
Task A5. Offense	100 rds caliber .50	RPG team, 100 to 300 meters, exposed for 60 seconds (VC).	RPG team, 300 to 500 meters, exposed for 60 seconds (VC).		Coax expanded, short halt
Task B1S. Defense	2 rds HEAT-TP-T	Stationary frontal PC, 900 to 1,100 meters, exposed for 50 seconds (gunner).	Moving flank PC, 1,400 to 1,600 meters, exposed for 50 seconds (gunner).		None
Task B2. Offense	1 rd HEAT-TP-T 50 rds 7.62mm	Moving flank PC, 900 to 1,100 meters, exposed for 50 seconds (gunner).	RPG team, 700 to 900 meters, exposed for 50 seconds (gunner).		CBRN (hatches closed, protective mask on)
Task B3. Offense	2 rds HEAT-TP-T 50 rds 7.62mm	Bunker, 400 to 800 meters, exposed for 50 seconds (gunner).	RPG team, 700 to 900 meters, exposed for 75 seconds (gunner).	Bunker, 600 to 800 meters, exposed for 60 seconds (15-second delay) (gunner).	None
Task B4. Offense	1 rd TPDS-T 50 rds 7.62mm	Stationary frontal tank, 1,400 to 1,600 meters, exposed for 50 seconds (gunner).	Moving technical truck, 700 to 900 meters, exposed for 50 seconds (gunner).		None
Task B5. Defense	1 canister round 75 rds 7.62mm	10-man Infantry squad, 100 to 300 meters, exposed for 50 seconds (VC).	Moving technical truck, 300 to 500 meters, exposed for 50 seconds (10-second delay) (VC).		GPCH failure

00018

61000

CT VIII

TASK	AMMUNITION	TARGET 1	TARGET 2	TARGET 3	CONDITIONS
Task A1. Defense	2 rds HEP-TP-T 50 rds 7.62mm	Window (room clearing), 400 to 600 meters, exposed for 60 seconds (gunner).	RPG team, 100 to 300 meters, exposed for 60 seconds (gunner).		CMS, MGC, ELRF failure
Task A2S. Offense	1 canister round 75 rds 7.62mm	10-man infantry squad, 100 to 300 meters, exposed for 50 seconds (gunner).	Moving technical truck, 500 to 700 meters, exposed for 50 seconds (gunner).		None
Task A3. Defense	1 rd HEAT-TP-T 100 rds 7.62mm	RPG team, 100 to 300 meters, exposed for 75 seconds (gunner).	Bunker, 400 to 600 meters, exposed for 50 seconds (gunner).	Moving technical truck, 700 to 900 meters, exposed for 50 seconds (15-second delay) (gunner).	CBRN (hatches closed, protective mask on)
Task A4. Defense	75 rds caliber .50 50 rds 7.62mm	RPG team, 500 to 700 meters, exposed for 50 seconds (gunner).	Stationary frontal truck, 800 to 1,000 meters, exposed for 50 seconds (VC).		Main gun weapon status tight
Task A5. Offense	3 rds TPDS-T 50 rds 7.62mm	Stationary frontal tank, 1,400 to 1,600 meters, exposed for 50 seconds (gunner).	RPG team, 500 to 700 meters, exposed for 75 seconds (gunner).	Moving flank tank, 1,000 to 1,200 meters, exposed for 50 seconds (15-second delay) (gunner).	None
Task B1. Offense	2 rds HEAT-TP-T 50 rds 7.62mm	Stationary frontal PC, 1,200 to 1,400 meters, exposed for 50 seconds (gunner).	RPG team, 700 to 900 meters, exposed for 50 seconds (gunner).		None
Task B2. Offense	1 rd HEP-TP-T 50 rds 7.62mm	Window (room clearing), 600 to 800 meters, exposed for 50 seconds (VC).	RPG team, 300 to 500 meters, exposed for 50 seconds (VC).		GPCH failure, short halt
Task B3. Defense	1 canister round 2 rds HEAT-TP-T 75 rds 7.62mm	10-man infantry squad, 100 to 300 meters, exposed for 50 seconds (gunner).	Bunker, 600 to 800 meters, exposed for 75 seconds (gunner).	Moving technical truck, 500 to 700 meters, exposed for 50 seconds (15-second delay) (gunner).	None
Task B4S. Offense	2 rds HEP-TP-T 50 rds 7.62mm	Wall (infantry passage), 300 to 500 meters, exposed for 50 seconds (gunner).	Sniper in 2d-story window, 100 to 300 meters, exposed for 50 seconds (gunner).		Short halt
Task B5. Defense	1 rd HEAT-TP-T	10-man infantry squad,	Bunker, 200 to 400 meters,		CBRN (hatches closed,

Advanced Gunnery

- Advanced Combat Tables
 - CT IX: Collective Training Course
(Section/Platoon)
 - CT X: Collective Qualification Course
(Platoon)
 - CT IX may be dry or device fired.

MGS CT IX

- Table IX is used to train the section and platoon in direct fire control, distribution, platoon maneuver, and command and control within a realistic COE-based tactical scenario.
 - Day and night phase and is the preparatory table for Table X.
 - Designed to challenge the platoon leader's command and control capabilities.
 - Tests the platoon's ability to engage moving and stationary ground targets with all MGS-mounted weapon systems.
 - Scenarios must also include friendly and noncombatant targetry presentations.
 - The primary means of conducting this gunnery table is with the caliber .50 inbore device.

MGS CT X

- Table X is the platoon qualification course.
 - Used to test the platoon in direct fire control, distribution, platoon maneuver, and command and control within a realistic COE-based tactical scenario.
 - Designed to challenge the platoon leader's command and control capabilities and ability integrate fire and maneuver both during the day and at night.
 - Scenarios must also include friendly and noncombatant targetry presentations.
 - Full-caliber live-fire table.
 - The platoon must qualify on Table IX prior to executing Table X.

MGS CALFEX

- The CALFEX is the culmination of weapon systems training at the company-team level. It is used to train units to perform primary combat missions in a realistic, live-fire environment.
- A CALFEX is a costly, resource-intensive exercise in which combined-arms teams, or task forces, maneuver and employ organic and supporting weapon systems.
 - It is the most realistic measure of combined-arms combat readiness and should be an integral part of every unit's training program.
 - Commanders must be aware of the limitations of the CALFEX, particularly in regard to flank maneuvering, and firing on live-fire ranges.
 - Available terrain will rarely support this type of maneuver. Commanders should use live-fire exercises to train certain aspects of combat readiness, such as distribution, coordination, and synchronization of direct and indirect fires.
 - Commands should try to link multiple digital multipurpose range complexes (DMPRC) for maximum training value whenever possible.